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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/631,723
Filing Date: August 03, 2000
Appellant(s): ARNDT ET AL.

Duke W. Yee (Reg. No. 34,285)
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed on 26th of April 2004.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The brief does not contain a statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief. Therefore, it is presumed that there are none. The Board, however, may exercise its discretion to require an explicit statement as to the existence of any related appeals and interferences.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is substantially correct. The changes are as follows:

I. Whether the rejection of Claims 1, 3, 8, 10, 15 and 17 under 35 U.S.C. 102(e) is proper.

II. Whether the rejection of Claims 2, 4-7, 9, 11-14, 16 and 18-21 under 35 U.S.C. 103(a) is proper.

(7) Grouping of Claims

Appellant's brief includes a statement that claims 1-21 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

US 6,044,411	Berglund et al.	3-2000
US 5,884,322	Sidhu et al.	3-1999
US 6,041,364	Lortz et al.	3-2000

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1, 3, 8, 10, 15 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Berglund et al. [US 6,044,411; hereinafter Berglund].

Fact Findings for Claims 1, 8 and 15

Claimed Elements	Berglund's Facts
a) managing input/output drawers within a data processing system	a) a method and apparatus for correlating the physical locations of system components with their corresponding logical addresses (See col. 1, lines 9-12 and Fig. 1)
b) assigning a unique identifier to each of a plurality of input/output drawers	b) defining a unique physical location address (See col. 7, lines 40-44 and 47) to each of a plurality of backplanes 113, 113A, 113B1 and 113B2 in Fig. 1A-C
c) storing the unique identifier in memory	c) writing said unique physical location address in local memory (See col. 7, lines 44-48)
d) the unique identifier is used by an operating system to identify the plurality of input/output drawers regardless of how the input/output drawers are interconnected by cables	d) an operating system uses said stored physical location indication to correlate logical addresses to physical location (See Abstract, at the last sentence and col. 4, lines 45-52)
e) physical addresses (viz., unit addresses, which should be interpreted as **logical addresses**; See Note) used when accessing devices contained within said plurality of input/output drawers do not change when reconfiguring at least one of said plurality of input/output drawers within the data processing system by physical removal or physical rearrangement *Note* : The term "physical addresses" should be interpreted as "unit addresses" since (1) the claim limitation "physical addresses used when accessing devices contained within said plurality of input/output drawers" has never been clearly defined in the original specification, and therefore (2) the subject matter "unit addresses",	e) logical addresses used when accessing PCI slots for PCI devices contained within said plurality of backplane 113, 113A, 113B1 and 113B2 in Fig. 1A-C do not change (i.e., logical addresses, which are used by operating system, are not changed even if the unique physical location addresses are changed. Only the mapping between said logical addresses and said unique physical location addresses is changed; See col. 7, lines 49-56) when reconfiguring at least one of backplane 113, 113A, 113B1 and 113B2 in Fig. 1A-C within said apparatus by physical removal or physical relocating (See col. 8, 45-49)

which is defined in the Application, page 16, lines 16-20, is the only one subject matter to be appropriately interpretable as the claim language "physical addresses" since the unit addresses are used when accessing devices (i.e., PHB devices) contained within said plurality of input/output drawers (i.e., RIO drawers; See Application, page 16, lines 15-24). However, the subject matter "unit addresses" could not be understood with a plain meaning of physical addresses in the art, but should be considered as logical addresses in the art because the Application cites that a memory mapping is assigning system memory address ranges (viz., physical addresses) so that the unit addresses can be used by the host processors to access I/O devices within the drawer on page 17, in lines 22-27.	
f) the physical addresses (i.e., unit addresses) that do not change include physical addresses used when accessing devices contained within the reconfigured drawer(s)	f) said logical addresses that do not change include logical addresses used when accessing PCI devices contained within said relocated backplanes (See col. 7, lines 51-63, col. 8, 45-49, and col. 10, lines 40-54)

Referring to claim 1, Berglund discloses a method of managing input/output drawers (See col. 1, lines 9-12) within a data processing system, said method comprising: assigning (i.e., defining) a unique identifier (i.e., unique physical location address; See col. 7, lines 40-44 and 47) to each of a plurality of input/output drawers (i.e., backplane 113, 113A, 113B1 and 113B2 in Fig. 1A-C); and storing (i.e., writing) said unique identifier in memory (See col. 7, lines 44-48); wherein said unique identifier (i.e., unique physical location address) is used by an operating system to identify said plurality of input/output drawers regardless of how said input/output drawers are interconnected by cables (See Abstract; i.e., wherein in fact that an operating system uses said stored physical location indication to correlate logical addresses to physical location clearly anticipates said unique identifier is used by an operating system to identify said plurality of input/output drawers (viz., to indicate location of said plurality of input/output drawers) regardless of how said input/output drawers are interconnected by cables (viz., through said correlation between said input/output drawers and said logical addresses of them; See col. 8, lines 45-49 and col. 14, lines 23-26), such that physical addresses (viz., the disclosed subject matter "unit addresses"

in the original specification; See Note in the above Fact Findings item e)) used when accessing devices (e.g., PCI slots 1 to 8 for PCI devices) contained within said plurality of input/output drawers (i.e., backplane 113, 113A, 113B1 and 113B2 in Fig. 1A-C) do not change (i.e., said logical addresses, which are used by operating system, are not changed even if the unique physical location addresses are changed. Only the mapping between said logical addresses and said unique physical location addresses is changed; See col. 7, lines 49-56) when reconfiguring at least one of said plurality of input/output drawers (e.g., one of backplane 113, 113A, 113B1 and 113B2 in Fig. 1A-C) within said data processing system (See col. 7, lines 12+; i.e., wherein in fact that SPCN electronically determines the backplanes in the enclosures and build a mapping of logical address to physical location address for each backplane and its slots anticipates that system firmware dynamically discovers the I/O drawers and assigned memory mapping to each one of drawers and its PHBs. This anticipation supports that the limitation "addresses used when accessing devices contained within said plurality of input/output drawers do not change when reconfiguring at least one of said input/output drawers within said data processing system") by physical insertion, physical removal or physical rearrangement (See col. 10, lines 36-53), wherein said physical addresses that do not change include physical addresses (i.e., logical addresses) used when accessing devices contained within said reconfigured drawer(s) (See col. 7, lines 51-63).

Referring to claim 8, Berglund discloses a computer program product (i.e., Firmware in SPCN 109 and OS in Fig. 1A) in a computer readable media (i.e., SPCN local memory and system memory for OS in Fig. 1) for use in a data processing system (e.g., CEC 101 and enclosures 103 and 105 in Fig. 1A-C) for managing input/output drawers (See col. 1, lines 9-12) within said data processing system, said computer program product comprising: first instructions (i.e., firmware instructions) for assigning (i.e., defining) a unique identifier (i.e., unique physical location address; See col. 7, lines 40-44 and 47) to each of a plurality of input/output drawers (i.e., backplane 113, 113A, 113B1 and 113B2 in Fig. 1A-C); and second instructions (i.e., firmware instructions) for storing (i.e., writing) said unique identifier in memory

(See col. 7, lines 44-48); wherein said unique identifier (i.e., unique physical location address) is used by an operating system to identify said plurality of input/output drawers regardless of how said input/output drawers are interconnected by cables (See Abstract; i.e., wherein in fact that an operating system uses said stored physical location indication to correlate logical addresses to physical location anticipates said unique identifier is used by an operating system to identify said plurality of input/output drawers (viz., to indicate location of said plurality of input/output drawers) regardless of how said input/output drawers are interconnected by cables (viz., through said correlation between said input/output drawers and said logical addresses of them; See col. 8, lines 45-49 and col. 14, lines 23-26), such that physical addresses (viz., the disclosed subject matter "unit addresses" in the original specification; See Note in the above Fact Findings item e)) used when accessing devices (e.g., PCI slots 1 to 8 for PCI devices) contained within said plurality of input/output drawers (i.e., backplane 113, 113A, 113B1 and 113B2 in Fig. 1A-C) do not change (i.e., said logical addresses, which are used by operating system, are not changed even if the unique physical location addresses are changed. Only the mapping between said logical addresses and said unique physical location addresses is changed; See col. 7, lines 49-56) when reconfiguring at least one of said plurality of input/output drawers (e.g., one of backplane 113, 113A, 113B1 and 113B2 in Fig. 1A-C) within said data processing system (See col. 7, lines 12+; i.e., wherein in fact that SPCN electronically determines the backplanes in the enclosures and build a mapping of logical address to physical location address for each backplane and its slots anticipates that system firmware dynamically discovers the I/O drawers and assigned memory mapping to each one of drawers and its PHBs. This anticipation supports that the limitation "addresses used when accessing devices contained within said plurality of input/output drawers do not change when reconfiguring at least one of said input/output drawers within said data processing system") by physical insertion, physical removal or physical rearrangement (See col. 10, lines 36-53), wherein said physical addresses that do not change include

physical addresses (i.e., logical addresses) used when accessing devices contained within said reconfigured drawer(s) (See col. 7, lines 51-63).

Referring to claim 15, Berglund discloses a system (i.e., Firmware in SPCN 109 and OS in Fig. 1A) for managing input/output drawers (See col. 1, lines 9-12) within a data processing system (e.g., CEC 101 and enclosures 103 and 105 in Fig. 1A-C), said system comprising: first means (i.e., firmware instructions) for assigning (i.e., defining) a unique identifier (i.e., unique physical location address; See col. 7, lines 40-44 and 47) to each of a plurality of input/output drawers (i.e., backplane 113, 113A, 113B1 and 113B2 in Fig. 1A-C); and second means (i.e., firmware instructions) for storing (i.e., writing) said unique identifier in memory (See col. 7, lines 44-48); wherein said unique identifier (i.e., unique physical location address) is used by an operating system to identify said plurality of input/output drawers regardless of how said input/output drawers are interconnected by cables (See Abstract; i.e., wherein in fact that an operating system uses said stored physical location indication to correlate logical addresses to physical location anticipates said unique identifier is used by an operating system to identify said plurality of input/output drawers (viz., to indicate location of said plurality of input/output drawers) regardless of how said input/output drawers are interconnected by cables (viz., through said correlation between said input/output drawers and said logical addresses of them; See col. 8, lines 45-49 and col. 14, lines 23-26), such that physical addresses (viz., the disclosed subject matter "unit addresses" in the original specification; See Note in the above Fact Findings item e)) used when accessing devices (e.g., PCI slots 1 to 8 for PCI devices) contained within said plurality of input/output drawers (i.e., backplane 113, 113A, 113B1 and 113B2 in Fig. 1A-C) do not change (i.e., said logical addresses, which are used by operating system, are not changed even if the unique physical location addresses are changed. Only the mapping between said logical addresses and said unique physical location addresses is changed; See col. 7, lines 49-56) when reconfiguring at least one of said plurality of input/output drawers (e.g., one of backplane 113, 113A, 113B1 and 113B2 in Fig. 1A-C) within said data processing system (See col. 7, lines 12+; i.e.,

wherein in fact that SPCN electronically determines the backplanes in the enclosures and build a mapping of logical address to physical location address for each backplane and its slots anticipates that system firmware dynamically discovers the I/O drawers and assigned memory mapping to each one of drawers and its PHBs. This anticipation supports that the limitation "addresses used when accessing devices contained within said plurality of input/output drawers do not change when reconfiguring at least one of said input/output drawers within said data processing system") by physical insertion, physical removal or physical rearrangement (See col. 10, lines 36-53), wherein said physical addresses that do not change include physical addresses (i.e., logical addresses) used when accessing devices contained within said reconfigured drawer(s) (See col. 7, lines 51-63).

Fact Findings for Claims 3, 10 and 17

Claimed Elements	Berglund's Facts
a) being performed in a service processor	a) during IPL (Initial Program Load), the operating system builds its logical mapping of the entire computer system by "walking its buses." by a SPCN node (See col. 7, lines 40-63)

Referring to claim 3, Berglund teaches said method is performed in a service processor (See col. 7, lines 40-48).

Referring to claim 10, Berglund teaches said first and second instructions are executed in a service processor (See col. 7, lines 40-48).

Referring to claim 17, Berglund teaches said first and second means are executed in a service processor (See col. 7, lines 40-48).

Claims 2, 5, 9, 12, 16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berglund [US 6,044,411] as applied to claims 1, 3, 8, 10, 15 and 17 above, and further in view of Sidhu et al. [US 5,884,322; hereinafter Sidhu].

Fact Findings for Claims 2, 9 and 16

Claimed Elements	Sidhu's Facts
a) responsive to a determination that a new input/output drawer has been added to the data processing system	a) responsive to a determination that a new server entity has been installed to a networked computer system (See col. 10, lines 23-25)
b) for assigning a new unique identifier to the new input/output drawer	b) for assigning a new unique server identification to said new server entity (See col. 10, lines 30-31),
c) the new unique identifier is different from any of the unique identifiers previously assigned	c) said new unique identifier is different from any of said unique identifications previously assigned (See col. 10, lines 32-35 and col. 11, lines 37-40)
d) each of the plurality of input/output drawers maintains the same unique identifier	d) each of said plurality of server entities maintains the same unique identification (See col. 10, lines 58-61; i.e., wherein in fact that a server entity assigns a unique identification from its set of available server identifications and removes the assigned identification from the set implies each of said plurality of input/output drawers (i.e., server entities) maintains the same unique identifier (i.e., the same unique identification))

Referring to claim 2, Berglund, discussed above, discloses all the limitations of the claims 2 except that does not teach responsive to a determination that a new input/output drawer has been added to said data processing system, for assigning a new unique identifier to said new input/output drawer, wherein said new unique identifier is different from any of said unique identifiers previously assigned, such that each of said plurality of input/output drawers maintains the same unique identifier.

Sidhu discloses a method and apparatus for creating and assigning unique identifiers for network entities and data base items in a networked computer system, wherein third instructions, responsive to a determination (See block 100 in Fig. 4) that a new input/output drawer (i.e., new server entity) has been added (i.e., installed) to said data processing system (i.e., networked computer system 10 of Fig. 1; See col. 10, lines 23-25), for assigning (See block 104 in Fig. 4) a new unique identifier (i.e., unique server identification) to said new input/output drawer (i.e., new server entity; See col. 10, lines 30-31), wherein said new unique identifier is different from any of said unique identifiers previously assigned (See col. 10,

lines 32-35 and col. 11, lines 37-40), such that each of said plurality of input/output drawers (i.e., server entities) maintains the same unique identifier (See col. 10, lines 58-61; i.e., wherein in fact that a server entity (i.e., input/output drawer) assigns a unique identification (i.e., unique identification) from its set of available server identifications and removes the assigned identification from the set implies each of said plurality of input/output drawers (i.e., server entities) maintains the same unique identifier (i.e., the same unique identification)).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said method steps, as disclosed by Sidhu, in said method, as disclosed by Berglund, for the advantage of providing a means for appropriating identifications in a manner which is consistent with input/output drawer use (i.e., network use), thereby reducing the number of unique identifications (i.e., the number of identifications) that remain dormant because of inactivity on said input/output drawer (i.e., the server) which owns those identifications (See Sidhu, col. 4, lines 17-21)..

Referring to claim 9, Berglund, discussed above, discloses all the limitations of the claim 9 except that does not teach third instructions, responsive to a determination that a new input/output drawer has been added to said data processing system, for assigning a new unique identifier to said new input/output drawer, wherein said new unique identifier is different from any of said unique identifiers previously assigned, such that each of said plurality of input/output drawers maintains the same unique identifier. Sidhu discloses a method and apparatus for creating and assigning unique identifiers for network entities and data base items in a networked computer system, wherein third instructions (i.e., computer program instructions), responsive to a determination (See block 100 in Fig. 4) that a new input/output drawer (i.e., new server entity) has been added (i.e., installed) to said data processing system (i.e., networked computer system 10 of Fig. 1; See col. 10, lines 23-25), for assigning (See block 104 in Fig. 4) a new unique identifier (i.e., unique server identification) to said new input/output drawer (i.e., new server entity; See col. 10, lines 30-31), wherein said new unique identifier is different from any of said unique identifiers

previously assigned (See col. 10, lines 32-35 and col. 11, lines 37-40), such that each of said plurality of input/output drawers (i.e., server entities) maintains the same unique identifier (See col. 10, lines 58-61; i.e., wherein in fact that a server entity (i.e., input/output drawer) assigns a unique identification (i.e., unique identification) from its set of available server identifications and removes the assigned identification from the set implies each of said plurality of input/output drawers (i.e., server entities) maintains the same unique identifier (i.e., the same unique identification)).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said third instructions, as disclosed by Sidhu, in said computer program product, as disclosed by Berglund, for the advantage of providing a means for appropriating identifications in a manner which is consistent with input/output drawer use(i.e., network use), thereby reducing the number of unique identifications (i.e., the number of identifications) that remain dormant because of inactivity on said input/output drawer (i.e., the server) which owns those identifications (See Sidhu, col. 4, lines 17-21).

Referring to claim 16, Berglund, discussed above, discloses all the limitations of the claim 16 except that does not teach third means, responsive to a determination that a new input/output drawer has been added to said data processing system, for assigning a new unique identifier to said new input/output drawer, wherein said new unique identifier is different from any of said unique identifiers previously assigned, such that each of said plurality of input/output drawers maintains the same unique identifier. Sidhu discloses a method and apparatus for creating and assigning unique identifiers for network entities and data base items in a networked computer system, wherein third means (i.e., computer program instructions), responsive to a determination (See block 100 in Fig. 4) that a new input/output drawer (i.e., new server entity) has been added (i.e., installed) to said data processing system (i.e., networked computer system 10 of Fig. 1; See col. 10, lines 23-25), for assigning (See block 104 in Fig. 4) a new unique identifier (i.e., unique server identification) to said new input/output drawer (i.e., new server entity; See

col. 10, lines 30-31), wherein said new unique identifier is different from any of said unique identifiers previously assigned (See col. 10, lines 32-35 and col. 11, lines 37-40), such that each of said plurality of input/output drawers (i.e., server entities) maintains the same unique identifier (See col. 10, lines 58-61; i.e., wherein in fact that a server entity (i.e., input/output drawer) assigns a unique identification (i.e., unique identification) from its set of available server identifications and removes the assigned identification from the set implies each of said plurality of input/output drawers (i.e., server entities) maintains the same unique identifier (i.e., the same unique identification)).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said third instructions, as disclosed by Sidhu, in said computer program product, as disclosed by Berglund, for the advantage of providing a means for appropriating identifications in a manner which is consistent with input/output drawer use(i.e., network use), thereby reducing the number of unique identifications (i.e., the number of identifications) that remain dormant because of inactivity on said input/output drawer (i.e., the server) which owns those identifications (See Sidhu, col. 4, lines 17-21).

Fact Findings for Claims 5, 12 and 19

Claimed Elements	Berglund's Facts
a) the unique identifier comprise device nodes and location codes	a) said unique physical location address comprise unique enclosure addresses and unique backplane addresses (See col. 7, lines 40-44)

Referring to claims 5, 12 and 19, Berglund teaches said unique identifier (i.e., unique physical location address) comprise device nodes (i.e., unique enclosure addresses) and location codes (i.e., unique backplane addresses). Refer to col. 7, lines 40-44.

Claims 4, 6, 7, 11, 13, 14, 18, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berglund [US 6,044,411] and Sidhu [US 5,884,322] as applied to claims 2, 5, 9, 12, 16 and 19 above, and further in view of Lortz et al. [US 6,041,364; hereinafter Lortz].

Fact Findings for Claims 4, 11 and 18

Claimed Elements	Lortz's Facts
a) the unique identifier and the new unique identifier are stored in a device tree	a) a system for adding a device entry to a device tree upon detecting the connection of a device, wherein said device tree (Fig. 2C) stores unique identifier (i.e., address, name and location on Device #1 272 of Fig. 2C) and an added new unique identifier (See col. 6, lines 41-44)

Referring to claims 4, 11 and 18, Berglund, as modified by Sidhu, discussed above, discloses all the limitations of the claims 4, 11 and 18, respectively, except that does not teach said unique identifier and said new unique identifier are stored in a device tree.

Lortz teaches a system for adding a device entry to a device tree upon detecting the connection of a device, wherein said device tree (Fig. 2C) stores unique identifier (address, name and location on Device #1 272 of Fig. 2C) and an added new unique identifier (See col. 6, lines 41-44).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said device tree, as disclosed by Lortz, in said data processing system, as disclosed by Berglund, as modified by Sidhu, for the advantage of providing a way for associating an input/output drawer (i.e., smart device; Lortz) with particular device driver for said input/output drawer (i.e., software components, device functions, or software categories; Lortz). Refer to Lortz, col. 2, line 55 through col. 3, line 3.

Fact Findings for Claims 6, 13 and 20

Claimed Elements	Lortz's Facts
a) the device tree is stored in a system memory	a) said device tree is stored in a computer readable media 240 in Fig. 2A

Referring to claims 6, 13 and 20, Lortz discloses said device tree is stored in a system memory (i.e., computer readable media 240 of Fig. 2A).

Fact Findings for Claims 7, 14 and 21

Claimed Elements	Lortz's Facts
a) updating a device tree to reflect a configuration of the data processing system after inclusion of the new input/output drawer	a) adding to a device tree in Fig. 2C (See col. 6, lines 41-44) to reflect a configuration of said system (See col. 6, lines 36-60) after inclusion of a new external device 205 of Fig. 2A (See col. 6, lines 41-63)

Referring to claim 7, Berglund, as modified by Sidhu, discloses all the limitations of the claim 7 except that does not teach updating a device tree to reflect a configuration of said data processing system after inclusion of said new input/output drawer.

Lortz teaches a system for adding a device entry to a device tree upon detecting the connection of a device, wherein updating said device tree (i.e., adding to a device tree in Fig. 2C; See col. 6, lines 41-44) to reflect a configuration of said data processing system (See col. 6, lines 36-60) after inclusion of a new input/output drawer (i.e., a new external device 205 of Fig. 2A; See col. 6, lines 41-63).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said method step, as disclosed by Lortz, in said method, as disclosed by Berglund, as modified by Sidhu, for the advantage of providing a way for associating an input/output drawer (i.e., smart device; Lortz) with particular device driver for said input/output drawer (i.e., software components, device functions, or software categories; Lortz). Refer to col. 2, line 55 through col. 3, line 3 of Lortz.

Referring to claim 14, Berglund, as modified by Sidhu, discloses all the limitations of the claim 14 except that does not teach fourth instructions for updating a device tree to reflect a configuration of said data processing system after inclusion of said new input/output drawer.

Lortz teaches a system for adding a device entry to a device tree upon detecting the connection of a device, wherein fourth instructions (i.e., device tree search instructions 284 of Fig. 2A) for updating said

device tree (i.e., adding to a device tree in Fig. 2C; See col. 6, lines 41-44) to reflect a configuration of said data processing system (See col. 6, lines 36-60) after inclusion of a new input/output drawer (i.e., a new external device 205 of Fig. 2A; See col. 6, lines 41-63).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said device tree with said fourth instructions, as disclosed by Lortz, in said data processing system, as disclosed by Berglund, as modified by Sidhu, for the advantage of providing a way for associating an input/output drawer (i.e., smart device; Lortz) with particular device driver for said input/output drawer (i.e., software components, device functions, or software categories; Lortz). Refer to col. 2, line 55 through col. 3, line 3 of Lortz.

Referring to claim 21, Berglund, as modified by Sidhu, discloses all the limitations of the claim 21 except that does not teach fourth means for updating a device tree to reflect a configuration of said data processing system after inclusion of said new input/output drawer.

Lortz teaches a system for adding a device entry to a device tree upon detecting the connection of a device, wherein fourth means (i.e., device tree search instructions 284 of Fig. 2A) for updating said device tree (i.e., adding to a device tree in Fig. 2C; See col. 6, lines 41-44) to reflect a configuration of said data processing system (See col. 6, lines 36-60) after inclusion of a new input/output drawer (i.e., a new external device 205 of Fig. 2A; See col. 6, lines 41-63).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said device tree with said fourth means, as disclosed by Lortz, in said data processing system, as disclosed by Berglund, as modified by Sidhu, for the advantage of providing a way for associating an input/output drawer (i.e., smart device; Lortz) with particular device driver for said input/output drawer (i.e., software components, device functions, or software categories; Lortz). Refer to col. 2, line 55 through col. 3, line 3 of Lortz.

(11) Response to Argument

Appellants' arguments with respect to Claims Group I (i.e., claims 1, 3, 8, 10, 15 and 17) have been considered.

In response to the Appellants' argument with respect to "... Appellants show that Berglund teaches that his physical addresses (which as will be shown below are being interpreted by the Examiner as reading on the claimed 'unique identifier') are composed using the *actual physical locations* of its components, ... Thus, it is shown that since Berglund uses actual physical device location information when constructing its logical address mapping, the physical addresses used when accessing a device *do change* when the device is re-cabled to be at another physical location within the system, since the physical address used to access the device is comprised of its physical enclosure/tower location information (Col. 4, lines 40-43) which would change when the device is re-cabled. See, in particular, Berglund's discussion at Col. 8, lines 42-52, where describes this exact scenario (and reproduced herein): '... In this way, *should an enclosure be removed and relocated at a different position on the main bus, ...* , so that system bus configuration information can be maintained *and updated* in the operating system and NVRAM. (emphasis added by Appellants)' This is in contrast to the claimed invention, where techniques for identifying or accessing devices contained within the drawers *do not change* when the drawers are relocated to a different position on the system bus by re-cabling, since a unique identifier is used by the operating system to identify the drawers regardless of how the input/output drawers are interconnected by cable." on the Appeal Brief, page 5, line 3 through page 6, line 7, the Examiner believes that the Appellants misinterpret the Berglund reference.

First of all, in contrary to the Appellants' statement, such that Berglund teaches that his physical addresses (which as will be shown below are being interpreted by the Examiner as reading on the claimed 'unique identifier') are composed using the *actual physical locations* of its components, the Berglund does not suggest the *actual physical locations* of components as their physical addresses, but discloses a

unique physical location address for the *actual physical locations* of the components, which is totally different from what the Appellants' claim language 'physical address' means, i.e., physical addresses used when accessing devices contained within said plurality of input/output drawers (See Claim 1, 8 and 15). Moreover, the Examiner does not interpret Berglund's physical addresses as reading on the claimed 'unique identifier', but maps Berglund's unique physical location addresses to the claimed subject matter 'unique identifier' (See Claim 1 rejection). In other words, in contrary that the Appellants assert as if Berglund's physical addresses are being interpreted by the Examiner as reading on the claimed 'unique identifier', the Examiner interprets the claimed 'unique identifier' as Berglund's unique physical location addresses because the claimed subject matter 'unique identifier', which is used by an operating system *to identify the plurality of input/output drawers*, should be separately treated from the claimed subject matter 'physical addresses', which is used when *accessing devices contained within said plurality of input/output drawers* (See the exemplary Claim 1).

Secondly, the Appellants allege that Berglund's physical addresses used when accessing a device *do change* when the device is re-cabled to be at another physical location within the system. In contrary to the Appellant's allegation, Berglund does not teach physical addresses used when accessing a device, but logical addresses (See Berglund, col. 15, lines 13-15) correlated into physical locations (See Berglund, col. 15, lines 15-17) are used when accessing a device. Even though Berglund's physical locations are *changed* when the device is re-cabled to be at another physical location within the system, their correlated logical addresses used when accessing a device *do not change* (See col. 14, lines 62-65; i.e., wherein in fact that each device having a logical address, and building a logical address to physical location table anticipates that logical address used when accessing a device *do not change* when the device is re-cabled to be at another physical location within the system).

Thirdly, the Appellants excerpt from Berglund's discussion at col. 8, lines 42-52, i.e., ... In this way, should an enclosure be removed and relocated at a different position on the main bus, ..., *a unique bus*

identifier persists in the NVRAM, so that system bus configuration information can be maintained and updated in the operating system and NVRAM. It merely means when an enclosure is removed and relocated (so called, re-cabled) at a different position on the main bus (i.e., at a different physical location), the system bus configuration information can be maintained and updated in the operating system and NVRAM thanks to *a unique bus identifier being persisted in the NVRAM*. Therefore, the excerpted discussion from Berglund does not describe that Berglund's physical addresses change when re-cabling enclosure at a different position on the main bus, but a unique bus identifier persists (i.e., does not change) in the NVRAM even if the physical locations change when re-cabling enclosure at a different position on the main bus.

At last, the Appellants assert that techniques for identifying or accessing devices contained within the drawers *do not change* when the drawers are relocated to a different position on the system bus by re-cabling. However, it is noted that the features upon which appellants rely (i.e., techniques for identifying or accessing devices contained within the drawers *do not change* when the drawers are relocated to a different position on the system bus by re-cabling) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Instead, the Appellants recite "physical addresses used when accessing devices contained within said plurality of input/output drawers do not change when reconfiguring at least one of said plurality of input/output drawers within the data processing system by physical removal or physical rearrangement" in the claimed invention. However, the Appellants have never clearly defined the claim language "physical addresses used when accessing devices contained within said plurality of input/output drawers" in the original specification, and thus the Examiner interprets the claim language "physical addresses" as the subject matter "unit addresses", which is defined in the Application, page 16, lines 16-20. It is the only one subject matter to be appropriately interpretable as the claim language "physical addresses" since

the Application discloses that the unit addresses are used when accessing devices (i.e., PHB devices) contained within said plurality of input/output drawers (i.e., RIO drawers) on page 16, lines 15-24. Therefore, the term "physical addresses" should be interpreted as "unit addresses" in light of the specification, wherein the unit address could not be understood with a plain meaning of physical addresses in the art, but should be considered with a meaning of logical addresses in the art because the Application cites that a memory mapping is assigning system memory address ranges (viz., physical addresses) so that the unit addresses can be used by the host processors to access I/O devices within the drawer on page 17, in lines 22-27.

As the exemplary claim 1 rejection states, Berglund teaches physical addresses (viz., the disclosed subject matter "unit addresses" in the original specification, which has a meaning of logical addresses) used when accessing devices (e.g., PCI slots 1 to 8 for PCI devices) contained within said plurality of input/output drawers (i.e., backplane 113, 113A, 113B1 and 113B2 in Fig. 1A-C) *do not change* (i.e., said logical addresses, which are used by operating system, are not changed even if the unique physical location addresses are changed. Only the mapping between said logical addresses and said unique physical location addresses is changed; See col. 7, lines 49-56) when reconfiguring at least one of said plurality of input/output drawers (e.g., one of backplane 113, 113A, 113B1 and 113B2 in Fig. 1A-C) within said data processing system.

Therefore, Appellants' arguments on this point appear to be in error and should not be held as persuasive for patentability.

In response to the Appellants' argument with respect to "Appellants further show that, in addition to Berglund's physical addresses being changed when a drawer is relocated, it is also entirely possible that Berglund's logical addresses are changed as well. As stated by Berglund at Col. 14, lines 23-29: '... The bus drop number stored in NVRAM is used to correlated the bus drop to the logical address. ..., a system enclosure (tower) may be re-attached in a different physical position on the system bus, or

removed completely. The bus identification in NVRAM can be used advantageously to correlate a moved tower to a possibly new logical identification.' (emphasis added by Appellants) Thus, when a Berglund system enclosure is moved, the physical address used when accessing devices contained therein do change. ... the moved tower may be given a new logical identification. Thus, it is shown that Berglund does not teach the claimed feature of ..." on the Appeal Brief, page 6, line 8 through page 7, line 2, the Examiner believes that the Appellants misinterpret the Berglund reference.

The Appellants essentially argue that the claimed feature of 'wherein the unique identifier is used by ... when accessing devices contained within the reconfigured drawer(s)' in lines 5-11 of the exemplary claim 1 is not taught by Berglund because Berglund's physical addresses is changed when a drawer is relocated, and it is also entirely possible that Berglund's logical addresses are changed as well. In contrary to the Appellants' allegation, Berglund teaches the above claimed feature (See Claim 1 rejection). As explained above by the Examiner, Berglund does not teach that physical addresses are changed when a drawer is relocated, but suggests that physical location address is changed when a drawer is relocated. Moreover, the Appellants assert it is also entirely possible that Berglund's logical addresses are changed as well. However, the Appellant fails to show an evidence of 'Berglund's logical addresses are changed as well when a drawer is relocated' except the Appellants' mere guessing. Even if the Appellants excerpt from Berglund, such that "a system enclosure (tower) may be re-attached in a different physical position on the system bus, or removed completely. The bus identification in NVRAM can be used advantageously to correlate a moved tower to a possibly new logical identification," the Berglund's logical identification is not the same as Berglund's logical address used when accessing devices (See Berglund, col. 14, lines 27-29 and 62-65).

Therefore, Appellants' arguments on this point appear to be in error and should not be held as persuasive for patentability.

In response to the Appellants' argument with respect to "Applicants further show that while Berglund teaches a logical to physical mapping of addresses, this logical to physical mapping is performed during each system IPL (initial program load)(Berglund Col. 7, lines 49-67). There is no indication whatsoever that the logical addresses are maintained at their same values between successive IPLs regardless of cable interconnect. Specifically, Berglund does not teach assigning a unique identifier to each of a plurality of input/output drawers, wherein the unique identifier is used by an operating system to identify the plurality of input/output drawers regardless of how the input/output drawers are interconnected by cables." on the Appeal Brief, page 7, lines 3-10, it is noted that the features upon which appellants rely (i.e., successive applying the claimed method) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). In fact, the Appellants do not claim (1) successive applying the claimed method, and (2) any indication that logical addresses are maintained at their same values between applying the claimed method regardless of cable interconnect.

Therefore, Appellants' arguments on this point appear to be in error and should not be held as persuasive for patentability.

In response to the Appellants' argument with respect to "In the 35 USC 102 claim rejection, the Examiner equates Berglund's unique physical location address to the claimed unique identifier. ... It is thus clear that *the Examiner is interpreting Berglund's unique physical location address as reading on the claimed 'unique identifier'*. It is respectfully shown that Berglund's unique physical location address does change if the enclosure is re-cabled to another location (Berglund Col. 8, lines 42-52). Thus, the features of the claimed unique identifier are not taught by the cited reference even when using the Examiner's interpretation of Berglund's unique physical address reading on the claimed unique identifier, as Berglund's physical address does change when the enclosure is re-cabled to another location. ..." on the

Appeal Brief, page 7, line 11 through page 8, line 5, the Examiner believes that the Appellants misinterpret the claim language and the claim rejection.

First of all, the exemplary claim 1 recites "said unique identifier is used by the operating system to identify said plurality of input/output drawers regardless of how said input/output drawers are interconnected by cable" in lines 5-6, and "physical addresses used when accessing devices contained within said plurality of input/output drawers" in lines 7-8. However, it does not claim any relationship between the subject matter "unique identifier" and the subject matter "physical addresses". The Examiner doubts why it is necessary that the subject matter "physical addresses" do change if the subject matter "unique identifier" changes. According to the claim language, the subject matter "unique identifier" merely identifies said plurality of input/output drawers regardless of how said input/output drawers are interconnected by cable, and the subject matter "physical addresses" is used when accessing devices contained within said plurality of input/output drawers. Therefore, the Appellants' concerning of the relationship between Berglund's "unique physical location address" and Berglund's "physical addresses" is beyond the scope of the Appellants' claimed invention.

In fact, the Appellants' invention discloses that the subject matter "physical address" used when accessing devices contained within said plurality of input/output drawers do change when reconfiguring, but the subject matter "logical address" used when accessing devices contained within said plurality of input/output drawers do not change when reconfiguring because the Application cites that a memory mapping is assigning system memory address ranges (viz., physical addresses) so that the unit addresses (viz., logical address) can be used by the host processors to access I/O devices within the drawer on page 16, lines 15-24 and page 17, lines 24-27.

Therefore, Appellants' arguments on this point appear to be in error and should not be held as persuasive for patentability.

Appellants' arguments with respect to Claims Group II (i.e., claims 2, 4-7, 9, 11-14, 16 and 18-21) have been considered.

In response to the Appellants' argument that the Examiner's conclusion of obviousness is based upon improper hindsight reasoning on the Appeal Brief, page 8, line 7 through page 10, line 4, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). In this case, the Examiner has clearly pointed out rationale for appropriate combination of the references.

Moreover, the Appellants assert that modifying the teachings of Berglund would defeat the entire purpose of the teachings of Berglund, i.e., being able to easily physically locate relocated device. However, the Appellants fail to support the reason of defeating the entire purpose of the teachings of Berglund after combining Berglund with Sidhu in the Appeal Brief.

In contrary to the Appellants' assertion, the combination would never defeat the entire purpose of the primary teaching of Berglund because Sidhu is concerning about adding a new input/output drawer, which has not been taught by Berglund, and the rationale, i.e., providing an advantage of a means for appropriating identifications in a manner which is consistent with input/output drawer use(i.e., network use), thereby reducing the number of unique identifications (i.e., the number of identifications) that remain dormant because of inactivity on said input/output drawer (i.e., the server) which owns those identifications, which is disclosed by Sidhu, at col. 4, lines 17-21.

Therefore, Appellants' arguments on this point appear to be in error and should not be held as persuasive for patentability.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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